



# Identifying Conductors and Insulators

## Lab Preview

**Directions:** Answer these questions before you begin the Lab.

1. Name the parts of a flashlight.  
\_\_\_\_\_
2. Which part of a flashlight provides a voltage difference?  
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*The resistance of an insulator is so large that only a small current flows when it is connected in a circuit. As a result, a lightbulb connected in a circuit with an insulator usually will not glow. In this lab, you will use the brightness of a lightbulb to identify conductors and insulators.*

## Real-World Question

What materials are conductors and what materials are insulators?

## Materials

battery                      bulb holder  
flashlight bulb          insulated wire

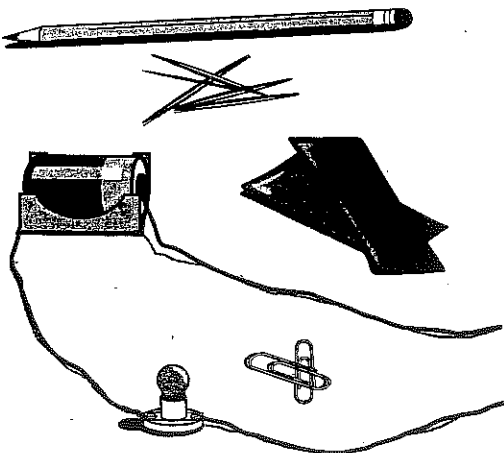
## Goals

- Identify conductors and insulators.
- Describe the common characteristics of conductors and insulators.

## Safety Precautions



Figure 1



## Procedure

1. Set up an incomplete circuit as shown in Figure 1.
2. Touch the free bare ends of the wires to various objects around the room. Test at least 12 items.
3. In the table below, record which materials make the lightbulbs glow and which don't.

## Data and Observations

Table 1

Material Tested with Lightbulb Circuit	
Lightbulb glows	Lightbulb doesn't glow



(continued)

**Conclude and Apply**

1. Is there a pattern to your data?

2. Do all or most of the materials that light the lightbulb have something in common?

3. Do all or most of the materials that don't light the lightbulb have something in common?

4. **Explain** why one material may allow the lightbulb to light and another prevent the lightbulb from lighting.

5. **Predict** what other materials will allow the lightbulb to light and what will prevent the lightbulb from lighting.

6. **Classify** all the materials you have tested as conductors or insulators.

**Communicating Your Data**

Compare your conclusions with those of other students in your class. For more help, refer to the Science Skill Handbook.